REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-5, 7-9, 11, 13-19, 21-23, 25, and 27-30 are pending in the present application. Claims 4, 14, 18, 22, 28, and 30 are amended. Claims 10, 12, 24, and 26 are canceled without prejudice or disclaimer by this amendment. Claims 1-3, 5, 7, 9, 11, 13, 15-17, 19, 21, 23, 25, 27, and 29 are withdrawn from consideration. It is respectfully submitted that no new matter is added by this amendment.

In the outstanding Office Action, Claims 4, 8, 10, 12, 14, 18, 22, 24, 26, 28, and 30 are rejected under 35 U.S.C. §103(a) as unpatentable over Kataoka et al. (U.S. Patent 4,561,717, hereafter Kataoka) in view of Shiraishi (U.S. Patent 5,715,078).

Before turning to the outstanding art rejection, it is believed that a brief review of the invention would be helpful. The present invention is directed to an optical scanning device that includes a plurality of scanning optical systems configured to scan different scanning surfaces. Each of the optical scanning systems include a light source, a deflector, a plurality of scanning lenses, an optical path inflection mirror, an imaging lens including a resin lens having a power in a sub-scanning direction and configured to lead the light flex emitted from the light source to the deflector, and a housing configured to support the light source and imaging lens, wherein the resin lens is directly affixed to the housing.

The non-limiting example of Figure 7 illustrates a change of an optical axis due to a temperature fluctuation.[1] The Applicant recognized that a resin lens may be substituted for a glass lens to reduce the associated cost due to the material of the lens and processing of the

[1] Applicant's specification, page 13, line 24 to page 14, line 6.

lens.[2] The Applicant also recognized that a resin lens has a high linear expansion coefficient as compared to a glass lens resulting in a degradation of a produced image if a temperature fluctuation results in a change of the scanning position in the sub-scanning direction that is different on each photoconductive element.[3] Therefore, the scanning optical systems recited in amended Claims 4, 14, 18, 28, and 30 decrease the change of an optical axis due to a temperature fluctuation resulting from the use of the less expensive resin lens.

Kataoka discloses an optical system for separating a plurality of laser beams from each other and for leading the separated laser beams to different recording materials.[4] However, Kataoka fails to teach or suggest the claimed scanning optical systems that include "an imaging lens including a resin lens having a power in a sub-scanning direction and configured to lead the light flux emitted from the light source to the deflector; and a housing configured to support the light source and imaging lens, wherein the resin lens is directed affixed to the housing." As noted in the outstanding Office Action on page 3, lines 17-21, Kataoka "does not teach the imaging lens includes a resin lens and the optical path inflection mirrors configured to decrease an amount of change in a relative scanning position of each scanning optical system caused by a temperature fluctuation in the plurality of scanning optical systems."

The outstanding Office Action relies on Shiraishi as teaching or suggesting the imaging lens including a resin lens and an optical path inflection mirror (column 14, line 65 – column 5, line 21) configured to decrease the amount of change in a relative scanning position of a scanning optical system caused by temperature fluctuation.[5] However, as shown in Figure 3 of Shiraishi the lens 11y is a hybrid lens composed of a glass cylinder lens 19y

[2] Applicant's specification, page 2, lines 10-13.
[3] Applicant's specification, page 2, lines 14-22.
[4] Kataoka, Abstract.
[5] Office Action mailed July 30, 2004, page 3, line 21 to page 4, line 9.

and a plastic cylinder lens 17y.[6] The plastic cylinder lens 17y may be made extremely thin according to the data disclosed in Table 1 and the plastic lens 17y shown in Figure 3. Therefore, the plastic cylinder lens 17y is not directly fixed to a housing, but instead the glass cylinder lens 19y is directly fixed to the housing. Therefore, Shiraishi does not teach or suggest a plurality of optical scanning systems, wherein "the resin lens is directly affixed to the housing," as recited in amended Claims 4, 14, 18, 28, and 30.

Therefore, it is respectfully submitted that neither Kataoka nor Shiraishi, either alone or in combination, teach or suggest a plurality of optical scanning systems, wherein "the resin lens is directly affixed to the housing." Accordingly, it is respectfully requested that the rejections to amended independent Claims 4, 14, 18, 28, and 30 be withdrawn. Likewise, it is respectfully requested that the rejection to dependent Claims 8 and 22 that depend from Claims 4 and 18, respectively, be withdrawn for at least the same reasons as discussed above with respect to parent claims.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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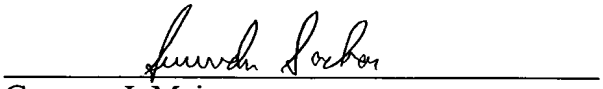

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[6] Shiraishi , column 5, lines 6-15.